

Title (en)

Impingement cooled turbine components with dirt separation

Title (de)

Turbinenkomponente mit Aufprallkühlung und Schmutztrennung

Title (fr)

Composants de turbine refroidis par courant d'air ayant un séparateur de saletés

Publication

**EP 1674660 A2 20060628 (EN)**

Application

**EP 05256498 A 20051020**

Priority

US 1862904 A 20041221

Abstract (en)

A vane (24) for use in a gas turbine engine has a leading edge (34) facing an upstream combustor. The vane (24) has hollow areas that receive an impingement tube for delivering impingement air. The impingement tube includes a radially outer portion (36) and a radially inner portion (40). An end wall (38) of the radially outer portion (36) is angled relative to a rotational axis of the turbine such that air entering the impingement tube from a radially outer source (28) has dirt directed away from the leading edge (34). Thus, dirt is less likely to clog leading edge air supply holes (44). In one embodiment, the inner and outer portions (36,40) are formed as separate pieces, and in another embodiment (Figure 4), the inner and outer portions (202,204) are formed as a single piece.

IPC 8 full level

**F01D 5/18** (2006.01); **F02C 7/18** (2006.01)

CPC (source: EP KR US)

**F01D 5/189** (2013.01 - EP US); **F02C 7/00** (2013.01 - KR); **F02C 7/052** (2013.01 - KR); **F05D 2260/201** (2013.01 - EP US); **F05D 2260/607** (2013.01 - EP US)

Citation (applicant)

US 4798515 A 19890117 - HSIA EDWARD S [US], et al

Cited by

WO2012019975A1; EP2418355A1; EP2706195A1; FR3094743A1; EP3650654A1; US11795828B2; US9238968B2; US11661850B2; WO2014037227A1; EP1908921B1

Designated contracting state (EPC)

DE GB

DOCDB simple family (publication)

**EP 1674660 A2 20060628**; **EP 1674660 A3 20090909**; **EP 1674660 B1 20110615**; CN 100585130 C 20100127; CN 1793616 A 20060628; JP 2006177340 A 20060706; KR 20060071301 A 20060626; SG 123662 A1 20060726; TW 200626791 A 20060801; TW I279487 B 20070421; US 2006133923 A1 20060622; US 7431559 B2 20081007

DOCDB simple family (application)

**EP 05256498 A 20051020**; CN 200510108695 A 20051020; JP 2005291835 A 20051005; KR 20050094294 A 20051007; SG 200506001 A 20050919; TW 94130240 A 20050905; US 1862904 A 20041221